UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/771,115	01/26/2001	Arthur Edward Shropshire	51005.P209	7005

22907	7590	01/20/2006

BANNER & WITCOFF
1001 G STREET N W
SUITE 1100
WASHINGTON, DC 20001

EXAMINER
FERRIS III, FRED O

ART UNIT	PAPER NUMBER
2128	

DATE MAILED: 01/20/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)
Office Action Summary	09/771,115	SHROPSHIRE, ARTHUR EDWARD
	Examiner	Art Unit	
	Fred Ferris	2128	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>30 November 2005</u>.

2a)☐ This action is **FINAL.**   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-25</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) <u>17-25</u> is/are allowed.

6)☒ Claim(s) <u>1-16</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>26 January 2001</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>11/30/06</u>.

4)☒ Interview Summary (PTO-413)
Paper No(s)/Mail Date. *oo6 oo5*

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

1.   *A request for continued examination under 37 CFR 1.114, including the fee set*

forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this

application is eligible for continued examination under 37 CFR 1.114, and the fee set

forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action

has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 22

August 2005 has been entered. Claims 1-25 remain pending in this application. Claims

17-25 were previously allowed over the prior art of record. Claims 1-16 remain rejected

by the examiner.

Response to Arguments

2.   *Applicant's amendment to the claims and arguments filed on 30 November 2005*

have been fully considered.

Regarding applicant's response to 103(a) rejections: The main thrust of

applicant's arguments center around asserting that independent claim 1 is novel over

the prior art by virtue of the inventions technique for "assignment of elements to

modules for use in a modular wiring harness design approach" as now recited in

amended claim 1. As now amended claim 1 recites the limitation "an element which is

associated with a plurality of modules that may be used together is associated to be

part of only a first module of that plurality of modules but has data representing that

element associated with each of that plurality of modules to thereby facilitate data

processing or analysis relating to a second module of said plurality of modules taking

into account the presence of said element in a combination of said second module with

said first module". The examiner maintains that this amendment to independent claim 1

has not clearly distinguished the claimed invention as non-obvious over the prior art of

record. In this case an "element" is simply a logical connection within a harness (i.e.

representing a signal wire) that is assigned to a module (i.e. connector). (specification

page 6, line 5) The recited "association" of the element with a plurality of modules that

may be "used together" to be part of a "first module", and having data associated with

multiple (plurality) modules to facilitate data processing and analysis relating to a

"second module", and to further account for its combination with the "first module", can

simply be interpreted to mean that the data attributes assigned to the elements are

global attributes. Hence, the data relationship of the elements is maintained across the

plurality of modules for an entire harness assembly. The examiner submits that this

relationship would be obvious to one of ordinary skill in the art since the use of global

attributes (i.e. not restricted to a single element) in data processing is very well known in

the art (See: "global" Microsoft Computer Dictionary, 1997). Further, such a relationship

would appear to be inherent in the connectivity and attribute handling facilities of

HarnWare as disclosed by Billsdon (See: page2, col. 2, Fig. 2). MPEP 2106 recites the

following supporting rational for this intrepretation:

> "While it is appropriate to use the specification to determine what applicant intends a term
> to mean, a positive limitation from the specification cannot be read into a claim that does
> not impose that limitation. A broad interpretation of a claim by Office personnel will
> reduce the possibility that the claim, when issued, will be interpreted more broadly than is
> justified or intended. An applicant can always amend a claim during prosecution to better
> reflect the intended scope of the claim."

The examiner therefore maintains the 103(a) rejection of claims 1-16. However,

applicants are encouraged to further amend independent claim 1 to include the

limitations of dependent claim 2 where "data is stored representing a virtual parent

harness including all modules available for designing a physical harness, and data is

stored identifying modules as a core module being and essential requirement of a

physical harness" in order to more clearly distinguish the claimed invention over the

prior art. At such time the examiner would favorably consider the allowance of claims 1-

16. (Please contact examiner for clarification)

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148

USPQ 459 (1966), that are applied for establishing a background for determining

obviousness under 35 U.S.C. 103(a) are summarized as follows:

1.   Determining the scope and contents of the prior art.
2.   Ascertaining the differences between the prior art and the claims at issue.
3.   Resolving the level of ordinary skill in the pertinent art.
4.   Considering objective evidence present in the application indicating obviousness or nonobviousness.

3.   *Claims 1-16 rejected under 35 U.S.C. 103(a) as being unpatentable over*

"Wiring Harness Design can a Computer Help?" R. Billsdon, Computing and

Control Engineering Journal, IEEE, August 1998 in view of U.S. Patent 5,610,454

issued to Nishikawa et al.

<u>Regarding independent claim 1:</u> *Billsdon discloses the Raychem Corporation's*

*HarnWare computer-aided wiring harness design system. Harnware contains a **library***

*of **intelligent harness drawing shapes** (i.e. core harnesses) and **catalogues wiring***

harness products**. Using HarnWare a designer makes decisions about **wire size,

routing, connector selection, shielding requirements and operating environment,

*and Harnware will use this information to (automatically) **select the right sized***

components. *Shapes representing harnessing products are **dragged and dropped***

*into the **drawing, automatically snapping and gluing together**. That is, HarnWare*

provides creating/storing data for wiring harness design with module data representing

wire and component element requirements to create a harness and stores design data

*of all relative harness elements (See pages 163-164, Figs. 1, 3, 4). **Dimensions** and*

connector references** (elements/attributes) are entered by **clicking a shape and

***typing** in the relevant information. That is, the data representing harness elements is*

associated with multiple harness modules. (Fig. 3-5, pages 165-166) The system

automatically traces on screen the route of each wire** in the **point-to-point wire list

through the harness geometry, calculates wire lengths**, determines the **best

***positioning** of mixed-diameter wires in each harness leg and outputs bundle diameters.*

(i.e. optimum routing, Fig. 5) A complex harness design can be finalized and

*documented, including a **drawing** (see figure 2), **bill of materials, labor estimate** and*

wire list. Harnware can generate harness documentation in several languages. *(Pages 166-167, Figs. 1-5)*

Billsdon does not explicitly disclose the ability associate element data with multiple modules used together as assigned to only one part of the module but having its data associated with each of the multiple modules. (Although the examiner is of the opinion that this feature is in fact available in the HarnWare software, but simply not disclosed in the Billson document)

Nishikawa also discloses creating/storing data for wiring harness design with module data representing wire and component element requirements to create a harness and stores design data of all relative harness elements. But more importantly discloses the ability to associate various harness design elements as common, dedicated, selectable elements within the design of the harness module. (CL5-L13-55, CL6-L9-55, CL11-L2-25, Figs. 5-8, Tab.1- 4) That is, Nishikawa teaches a system with the ability to associate harness element data with multiple modules that are used together and assigned to only one part of the module, (i.e. as common, dedicated, or selectable) but have data associated with each of the multiple modules. (CL2-L36-67, CL3-L3-49)

It would have been obvious to one having ordinary skill in the art at the time the claimed invention was made to modify the teachings of Billsdon relating to creating/storing data for wiring harness design with module data representing wire and component element requirements, with the teachings of Nishikawa relating to associating harness element data with multiple modules that are used together, to

realize the claimed invention. An obvious motivation exists since, in this case, the

Billsdon reference teaches to the Nishikawa reference, and the Nishikawa reference

teaches to the Billsdon reference. Specifically, both Billsdon and Nishikawa teach

creating/storing data for wiring harness design and are used in the same technological

arena as noted above. Billsdon teaches to Nishikawa because Billsdon teaches

representing wire and component elements create a harness (See: Billsdon, pages 163-

167, Figs. 1-5). Nishikawa teaches to Billsdon because Nishikawa specifically teaches

associating harness element data with multiple modules that are used together and

assigned to only one part of the module. (See: Nishikawa: CL2-L36-67, CL3-L3-49,

Figs. 5-8, Tabs. 1-4) Further, the level of skill required by an artisan to realize the

claimed limitations of the present invention is clearly established by both references.

(See: Billsdon/Nishikawa, Intro/Abstract) Accordingly, a skilled artisan having access to

the teachings of Billsdon and Nishikawa, would have knowingly modified the teachings

of Billsdon with the teachings of Nishikawa (or visa versa) to realize the claimed

elements of the present invention while reducing the cost and development time.

   Regarding dependent claims 2-16: Dependent claims include limitations relating

to virtual/physical harness modules, the data relationship between harness modules,

and automatic assignment/verification of attributes all of which have been disclosed in

the prior art as previously cited above. Billsdon teaches a virtual harness (Figs. 2, 3-5)

inclusive of manual/automatic selection, incompatible parts, relationships between

elements, and specifying harness element assignment (Pages 163-167, Figs. 1-5) as

noted above. Nishikawa teaches associating and assigning harness element data as

common, dedicated, selectable elements within the design of the harness module (CL2-

L36-67, CL3-L3-49) and would have knowingly been incorporated by a skilled artisan

using the reasoning previously cited above.

Allowable Subject Matter

4.   Claims 17-25 have been allowed over the prior art of record.

The following is an examiners statement of reasons for allowance:

Applicants are disclosing a computer based system for creating a wiring harness

design where module data is created for harness modules representing wire and

component elements based on various options so that the modules can be assembled

by selected (optional) combinations to create a complete harness. These features are

generally disclosed in the prior art. However, the prior art of record, while generally

disclosing these features, does not meet the conditions as suggested in MPEP section

2132, namely:

"The identical invention must be shown in as complete detail as is contained in the ...

claim." Richardson v. Suzuki Motor Co., 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920

(Fed. Cir. 1989). The elements must be arranged as required by the claim, but this is

*not an **ipsissimis verbis** test, i.e., identity of terminology is not required. **In re Bond**,*

910 F.2d 831, 15 USPQ2d 1566 (Fed. Cir. 1990)."

In this case, the prior art of record does not disclose the specific arrangement of

elements relating to a virtual parent harness representation of all modules available for

designing the physical harness, association by permissible relationship between

modules as defined by applicant's specification (pp. 10-18, tables 1-3), or a core module

in the physical harness of only one core module corresponding to the modular wiring

harness design, as disclosed within the context of independent claims 17, and 19.

The closest prior art of record uncovered during examination discloses various

techniques for wiring harness design. For example:

- *U.S. Patent 6,457,165 issued to Ishikawa et al* discloses a wiring harness

design system that creates and stores design data of relative harness elements

including the relationship between modules with automatic harness calculations and

verification. Ishikawa does not explicitly disclose a virtual parent harness representation

of all modules available for designing the physical harness, association by permissible

relationship between modules as defined by applicant's specification (pp. 10-18, tables

1-3), or a core module in the physical harness of only one core module corresponding to

the modular wiring harness design.

- *"Wiring Harness Design can a Computer Help?" R. Billsdon, Computing and*

Control Engineering Journal, IEEE, August 1998 discloses Raychem Corporation's

HarnWare computer-aided wiring harness design system which includes, a library of

intelligent harness drawing shapes (i.e. core harnesses), automatic on screen tracing of

point-to-point wire routes, harness geometry and wire lengths calculation, and best

positioning. However, Billson also does not explicitly disclose a virtual parent harness

representation of all modules available for designing the physical harness, association

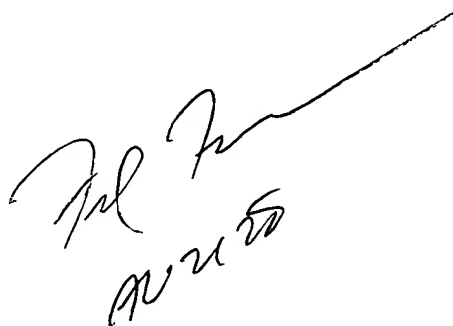by permissible relationship between modules as defined by applicant's specification (pp.

10-18, tables 1-3), or a core module in the physical harness of only one core module

corresponding to the modular wiring harness design.

Dependent claims 18, and 20-25 are deemed allowable as being dependent from

independent claims 17, and 19 respectively.

Conclusion

5.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Fred Ferris whose telephone number is 571-272-3778

and whose normal working hours are 8:30am to 5:00pm Monday to Friday. Any inquiry

of a general nature relating to the status of this application should be directed to the

group receptionist whose telephone number is 571-272-3700. If attempts to reach the

examiner by telephone are unsuccessful, the examiner's supervisor, Kamini Shah can

be reached at 571-272-3780. The Official Fax Number is: (703) 872-9306

Fred Ferris, Patent Examiner
Simulation and Emulation, Art Unit 2128
U.S. Patent and Trademark Office
Randolph Building, Room 5D19
401 Dulany Street
Alexandria, VA 22313
Phone: (571-272-3778)
Fred.Ferris@uspto.gov
6 January 2006